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# Anxiolytic-like effects of mitragynine in the open-field and elevated plus-maze tests in rats

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## Abstract

The effects of mitragynine on anxiety-related behaviours in the open-field and elevated plus-maze tests were evaluated. Male Sprague–Dawley rats were orally treated with mitragynine (10, 20 and 40 mg/kg) or diazepam (10 mg/kg) 60 min before behavioural testing. Mitragynine doses used in this study were selected on the basis of approximately human equivalent doses with reference to our previous literature reports. Acute administration of mitragynine (10, 20 and 40 mg/kg) or diazepam (10 mg/kg) increased central zone and open arms exploration in the open-field and elevated plus-maze tests respectively. These anxiolytic-like effects of mitragynine were effectively antagonized by intraperitoneal administration of naloxone (2 mg/kg), flumazenil (10 mg/kg), sulpiride (0.5 mg/kg) or SCH 23390 (0.02 mg/kg) 15 min before mitragynine treatments. These findings reveal that the acute administration of mitragynine produces anxiolytic-like effects and this could be possibly attributed to the interactions among opioidergic, GABAergic and dopaminergic systems in brain regions involved in anxiety.

## Keywords

Anxiolytic Mitragynine Open-field Elevated plus-maze

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